Complete Summary

GUIDELINE TITLE

Pressure ulcers in adults: prediction and prevention.

BIBLIOGRAPHIC SOURCE(S)

Agency for Health Care Policy and Research (AHCPR). Pressure ulcers in adults: prediction and prevention. Rockville (MD): U.S. Department of Health and Human Services, Public Health Service, AHCPR; 1992 May. 63 p. (Clinical practice guideline; no. 3). [127 references]

GUIDELINE STATUS

This is the current release of the guideline. Per a recent Evidence-based Practice Center (EPC) report commissioned by the Agency for Healthcare Research and Quality (AHRQ) (formerly the Agency for Health Care Policy and Research [AHCPR]), the guideline is considered, in whole or in part, to still be current.

Please see the National Guideline Clearinghouse summaries Treatment of Pressure Ulcers (2002) and Prevention of Treatment Ulcers (2002) authored by the University of Iowa Gerontological Nursing Interventions Research Center. These guidelines were adapted from the AHCPR Clinical Guidelines "Pressure Ulcers in Adults: Prediction and Prevention" (May 1992) and "Treatment of Pressure Ulcers" (December 1994) and updates certain information contained in these guidelines.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Pressure ulcers

GUIDELINE CATEGORY

Management
Prevention
Risk Assessment
Treatment

CLINICAL SPECIALTY

Dermatology
Family Practice
Geriatrics
Internal Medicine
Nursing
Nutrition
Physical Medicine and Rehabilitation
Preventive Medicine

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Dietitians
Health Care Providers
Health Plans
Hospitals
Managed Care Organizations
Nurses
Occupational Therapists
Patients
Physical Therapists
Physician Assistants
Physicians
Podiatrists
Social Workers
Students

GUIDELINE OBJECTIVE(S)

- To help identify adults at risk of pressure ulcers
- To define early interventions for prevention of pressure ulcers
- To manage Stage I pressure ulcers

TARGET POPULATION

Adult patients at risk for developing pressure ulcers. Individuals at risk may be seen in community, tertiary care, and other hospitals; in nursing homes and extended care facilities; and in the home.

(Note: the guideline is not intended as a basis for care of infants and children, nor do recommendations apply to individuals with existing Stage II or greater pressure ulcers or to individuals who are fully mobile.)

INTERVENTIONS AND PRACTICES CONSIDERED

Interventions considered by the panel included early detection maneuvers such as risk factor identification and laboratory tests for screening of nutritional status. Treatments evaluated by the panel included those broadly conceptualized as pressure reduction or relief and strategies to maintain tissue tolerance. The panel did not consider interventions unless they were supported by two or more clinical studies or were recommended in current clinical practice.

MAJOR OUTCOMES CONSIDERED

- Sensitivity and specificity of risk assessment tools
- Incidence of pressure ulcers

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases
Searches of Unpublished Data

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The National Library of Medicine (NLM) conducted a comprehensive literature review for the panel, which carefully scrutinized clinical benefits and harms and reviewed prevailing practice documented in professional standards and written reports. There was a comprehensive retrieval of published manuscripts and relevant unpublished material. Relevant literature was identified from computerized searches conducted in July and August of 1990 by NLM staff. Bibliographic data bases that were searched included MEDLINE and 20 other data bases. Through these mechanisms, the panel reviewed approximately 12,000 abstracts (including duplicates from several data bases). About 800 manuscripts were evaluated; 27 percent were research manuscripts.

NUMBER OF SOURCE DOCUMENTS

About 800 manuscripts were evaluated; 27 percent were research manuscripts.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

The panel assigned each recommendation of rating of A, B, or C to indicate the strength of the evidence supporting the recommendation. The ratings were based on the following criteria:

A: Results of two or more randomized controlled clinical trials on pressure ulcers in humans provide support.

B: Results of two or more controlled clinical trials on pressure ulcers in humans provide support, or when appropriate, results of two or more controlled trials in an animal model provide indirect support.

C: This rating requires one or more of the following: (1) results of one controlled trial; (2) results of at least two case series/descriptive studies on pressure ulcers in humans; or (3) expert opinion.

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The guideline was written after scientific evidence and expert or professional judgment had been evaluated and the harms and benefits of each recommendation considered. Recommendations were based first on the quality of the direct or indirect supporting evidence that an action would produce a favorable result. Second, the research base suggesting the direct or indirect result must have been replicated in a minimum of one study. It was preferred that multiple studies serve as the basis for recommendations. Third, recommendations were supported by common practice as reflected by review articles, chapters in textbooks, and the standards and guidelines of professional organizations. Expert opinion or professional judgment is an important part of guideline development because it is unlikely that there will be an adequate scientific database to support each recommendation. When research evidence was lacking, expert opinion was used and documented as such.

Based on the experience of the Conduct and Utilization of Research in Nursing (CURN) project, guidelines are most effective when they are specific. For this reason, the panel attempted to be as specific as possible while allowing enough flexibility to respect expert judgment and patient preferences in individual cases.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Clinical Validation-Pilot Testing
Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

A draft of the guideline was analyzed by experts at a conference sponsored by the National Pressure Ulcer Advisory Panel (NPUAP), the International Association for Enterostomal Therapy (IAET), and the Association of Rehabilitation Nurses. Experts at the conference analyzed the guideline for its legal, ethical, fiscal, administrative, clinical medicine and nursing, educational, and research impact. Small group sessions analyzed how the guideline would affect acute care, long-term care, and home care. Suggestions were incorporated into a revised version of the guideline document.

Next, peer review was undertaken. Peer reviewers were selected from:

- Professional organizations, which were invited to disseminate the guideline to as many reviewers as deemed appropriate and to collate responses for return of a single document to the panel.
- Participants in the open forum and NPUAP conference and other professional participants who volunteered.
- Individuals who wrote, phoned, or otherwise identified themselves as willing to review.

A list of potential peer reviewers was maintained throughout the project. Final selection of peer reviewers considered representation from both a broad range of professional disciplines and clinical practice arenas.

Peer reviewers were asked specifically to evaluate the comprehensiveness of the literature review and identify any manuscripts that were omitted or inappropriately or incompletely cited, evaluate the conclusions based on the literature review, and evaluate the guideline recommendations based on practical realities. Comments from peer reviewers were distributed to the panel. Panel deliberations regarding these comments resulted in guideline revisions as appropriate.

The panel subjected the pressure ulcers guideline to pilot review before providing it to the Agency for Health Care Policy and Research (AHCPR). Pilot review comprised three specific activities. First, health care agencies were invited to examine the hypothetical impact of the guideline on their setting. Cost, resources, and practicability of implementation were considered. Second, health care agencies were invited to examine the guideline, test it informally on a small number of patients in the practice setting, and provide feedback to the panel. Third, selected sites were asked to provide a somewhat more formal evaluation of the guideline, as time allowed, setting in motion a plan for implementing guideline

recommendations. This more in depth testing provided additional useful information prior to final revisions.

Pilot review sites, like peer reviewers, were selected from a list of names submitted to the panel during the process of guideline development. Key organizations representing classifications of health care settings were asked to conduct pilot reviews. A broad diversity of clinical representation was sought. University hospitals, community hospitals, and small rural hospitals were selected, as well as nursing home chains, small private nursing homes, and visiting nurse and other home health care agencies. Attention was also given to regional distribution.

After the results of pilot review were collated and appropriate responses incorporated, the guideline was submitted to AHCPR.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The strength of evidence definitions are provided at the end of the "Major Recommendations" field.

Risk Assessment Tools and Risk Factors

Identify at-risk individuals needing prevention and the specific factors placing them at risk.

1. Bed- and Chair-Bound Individuals

   Bed- and chair-bound individuals or those with impaired ability to reposition should be assessed for additional factors that increase risk for developing pressure ulcers. These factors include immobility, incontinence, nutritional factors such as inadequate dietary intake and impaired nutritional status, and altered level of consciousness. Individuals should be assessed on admission to acute care and rehabilitation hospitals, nursing homes, home care programs, and other health care facilities. A systematic risk assessment can be accomplished by using a validated risk assessment tool such as the Braden Scale or Norton Scale. Pressure ulcer risk should be reassessed at periodic intervals. (Strength of Evidence = A.) All assessments of risk should be documented. (Strength of Evidence = C.)

Skin Care and Early Treatment

Maintain and improve tissue tolerance to pressure in order to prevent injury.

1. Skin Inspection

All individuals at risk should have a systematic skin inspection at least once a day, paying particular attention to the bony prominences. Results of skin inspection should be documented. (Strength of Evidence = C.)

2. Skin Cleansing

Skin cleansing should occur at the time of soiling and at routine intervals. The frequency of skin cleansing should be individualized according to need and/or patient preference. Avoid hot water, and use a mild cleansing agent that minimizes irritation and dryness of the skin. During the cleansing process, care should be utilized to minimize the force and friction applied to the skin. (Strength of Evidence = C.)

3. Dry Skin

Minimize environmental factors leading to skin drying, such as low humidity (less than 40 percent) and exposure to cold. Dry skin should be treated with moisturizers. (Strength of Evidence = C.)

4. Massage

Avoid massage over bony prominences. (Strength of Evidence=B.)

5. Exposure to Moisture

Minimize skin exposure to moisture due to incontinence, perspiration, or wound drainage. When these sources of moisture cannot be controlled, underpads or briefs can be used that are made of materials that absorb moisture and present a quick-drying surface to the skin. Topical agents that act as barriers to moisture can also be used. (Strength of Evidence = C.)

6. Friction and Shear Injuries

Skin injury due to friction and shear forces should be minimized through proper positioning, transferring, and turning techniques. In addition, friction injuries may be reduced by the use of lubricants (such as corn starch, and creams), protective films (such as transparent film dressings, and skin sealants), protective dressings (such as hydrocolloids), and protective padding. (Strength of Evidence = C.)

7. Nutrition

When apparently well-nourished individuals develop an inadequate dietary intake of protein or calories, caregivers should first attempt to discover the factors compromising intake and offer support with eating. Other nutritional supplements or support may be needed. If dietary intake remains inadequate and if consistent with overall goals of therapy, more aggressive nutritional intervention such as enteral or parenteral feedings should be considered. (Strength of Evidence = C.)

For nutritionally compromised individuals, a plan of nutritional support and/or supplementation should be implemented that meets individual needs and is consistent with the overall goals of therapy. (Strength of Evidence = C.)

8. Mobility and Activity

   If potential for improving mobility and activity status exists, rehabilitation efforts should be instituted if consistent with the overall goals of therapy. Maintaining current activity level, mobility, and range of motion is an appropriate goal for most individuals. (Strength of Evidence = C.)

9. Documentation

   Interventions and outcomes should be monitored and documented. (Strength of Evidence = C.)

Mechanical Loading and Support Surfaces

Protect against the adverse effects of external mechanical forces: pressure, friction, and shear.

1. Repositioning

   Any individual in bed who is assessed to be at risk for developing pressure ulcers should be repositioned at least every 2 hours if consistent with overall patient goals. A written schedule for systematically turning and repositioning the individual should be used. (Strength of Evidence = B.)

2. Positioning Devices

   For individuals in bed, positioning devices such as pillows or foam wedges should be used to keep bony prominences (for example, knees or ankles) from direct contact with one another, according to a written plan. (Strength of Evidence = C.)

3. Pressure Relief for the Heels

   Individuals in bed who are completely immobile should have a care plan that includes the use of devices that totally relieve pressure on the heels, most commonly by raising the heels off the bed. Do not use donut-type devices. (Strength of Evidence = C.)

4. Side-lying Positions

   When the side-lying position is used in bed, avoid positioning directly on the trochanter. (Strength of Evidence = C.)

5. Bed Positioning

Maintain the head of the bed at the lowest degree of elevation consistent with medical conditions and other restrictions. Limit the amount of time the head of the bed is elevated. (Strength of Evidence=C.)

6. Lifting Devices

   Use lifting devices such as a trapeze or bed linen to move (rather than drag) individuals in bed who cannot assist during transfers and position changes. (Strength of Evidence = C.)

7. Pressure-Reducing Devices for Beds

   Any individual assessed to be at risk for developing pressure ulcers should be placed when lying in bed on a pressure-reducing device, such as foam, static air, alternating air, gel, or water mattresses. (Strength of Evidence = B.)

8. Pressure from Sitting

   Any person at risk for developing a pressure ulcer should avoid uninterrupted sitting in a chair or wheelchair. The individual should be repositioned, shifting the points under pressure at least every hour or be put back to bed if consistent with overall patient management goals. Individuals who are able should be taught to shift weight every 15 minutes. (Strength of Evidence = C.)

9. Pressure-Reducing Devices for Chairs

   For chair-bound individuals, the use of a pressure-reducing device such as those made of foam, gel, air, or a combination is indicated. Do not use donut-type devices. (Strength of Evidence = C.)

10. Postural Alignment

    Positioning of chair-bound individuals in chairs or wheelchairs should include consideration of postural alignment, distribution of weight, balance and stability, and pressure relief. (Strength of Evidence = C.)

11. Plans and Scheduling

    A written plan for the use of positioning devices and schedules may be helpful for chair-bound individuals. (Strength of Evidence=C.)

<u>Education</u>

Reduce the incidence of pressure ulcers through educational programs.

1. Scope

Educational programs for the prevention of pressure ulcers should be structured, organized, and comprehensive and directed at all levels of health care providers, patients, and family or caregivers. (Strength of Evidence = A.)

2. Topics

   The educational program for prevention of pressure ulcers should include information on the following items (Strength of Evidence = B):

   - Etiology and risk factors for pressure ulcers.
   - Risk assessment tools and their application.
   - Skin assessment.
   - Selection and/or use of support surfaces.
   - Development and implementation of an individualized program of skin care.
   - Demonstration of positioning to decrease risk of tissue breakdown.
   - Instruction on accurate documentation of pertinent data.

3. Roles and Presentation

   The educational program should identify those responsible for pressure ulcer prevention, describe each person's role, and be appropriate to the audience in terms of level of information presented and expected participation. The educational program should be updated on a regular basis to incorporate new and existing techniques or technologies. (Strength of Evidence = C.)

4. Program Development

   Educational programs should be developed, implemented, and evaluated using principles of adult learning. (Strength of Evidence=C.)

Definitions

The panel assigned each recommendation of rating of A, B, or C to indicate the strength of the evidence supporting the recommendation. The ratings were based on the following criteria:

A: Results of two or more randomized controlled clinical trials on pressure ulcers in humans provide support.

B: Results of two or more controlled clinical trials on pressure ulcers in humans provide support, or when appropriate, results of two or more controlled trials in an animal model provide indirect support.

C: This rating requires one or more of the following: (1) results of one controlled trial; (2) results of at least two case series/descriptive studies on pressure ulcers in humans; or (3) expert opinion.

CLINICAL ALGORITHM(S)

A clinical algorithm is presented for pressure ulcer prediction and prevention.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Prevention of pressure ulcers in adults at risk is the overall goal of this guideline. Most can be prevented, and those Stage I pressure ulcers (nonblanchable erythema of intact skin) that do form need not worsen. Recommendations target four goals: (1) identifying at-risk individuals who need preventive intervention and the specific factors placing them at risk; (2) maintaining and improving tissue tolerance to pressure in order to prevent injury; (3) protecting against the adverse effects of external mechanical forces (pressure, friction, and shear); and (4) reducing the incidence of pressure ulcers through educational programs.

Subgroups Most Likely to Benefit:

Several subpopulations may be at higher risk [of pressure ulcer development], including quadriplegic patients (60 percent prevalence), elderly patients admitted for femoral fracture (66 percent incidence), and critical care patients (33 percent incidence).

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

Guideline recommendations should be viewed in light of the overall goals of patient care. Prevention of pressure ulcers is imperative when the overall goal is to cure an illness, to rehabilitate the individual, or to help the individual live optimally with a chronic illness. However, when an individual is in the latter stages of a terminal illness and is suffering intractable pain, the primary goal of therapy may be to promote comfort and decrease pain. In this case, frequent repositioning, nutritional support, and other strategies to prevent pressure ulcers may not be consistent with the goal of promoting comfort.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Clinical Algorithm
Foreign Language Translations
Patient Resources
Quick Reference Guides/Physician Guides

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

RELATED QUALITY TOOLS

- Preventing Pressure Ulcers: A Patient's Guide. Consumer Guide Number 3

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Agency for Health Care Policy and Research (AHCPR). Pressure ulcers in adults: prediction and prevention. Rockville (MD): U.S. Department of Health and Human Services, Public Health Service, AHCPR; 1992 May. 63 p. (Clinical practice guideline; no. 3). [127 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1992 (reviewed 2000)

GUIDELINE DEVELOPER(S)

Agency for Healthcare Research and Quality - Federal Government Agency [U.S.]

SOURCE(S) OF FUNDING

United States Government

GUIDELINE COMMITTEE

Panel for the Prediction and Prevention of Pressure Ulcers in Adults

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

The panel consisted of three physicians (family practice, dermatology, and gerontology), five nurses (rehabilitation, aging, acute care, enterostomal therapy, oncology, and management), one occupational therapist (rehabilitation), one basic scientist (plastic surgery research), one biomedical engineer (rehabilitation), and one consumer representative.

Names of Committee Members: Nancy Bergstrom, PhD, RN, FAAN (Chair); Richard M. Allman, MD; Carolyn E. Carlson, PhD, RN; William Eaglstein, MD; Rita A. Frantz, PhD, RN, FAAN; Susan L. Garber, MA, OTR, FAOTA; Davina Gosnell, PhD, RN, FAAN; Bettie S. Jackson, EdD, MBA, FAAN; William Eaglstein, MD; Davina Gosnell, PhD, RN, FAAN; Mildred G. Kemp, PhD, RN, CETN, FAAN; Thomas A. Krouskop, PhD; Elena M. Marvel, MSN, MA, RN; George T. Rodeheaver, PhD; George C. Xakellis, MD.

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline. Per a recent Evidence-based Practice Center (EPC) report commissioned by the Agency for Healthcare Research and Quality (AHRQ) (formerly the Agency for Health Care Policy and Research [AHCPR]), the guideline is considered, in whole or in part, to still be current.

Please see the National Guideline Clearinghouse summaries Treatment of Pressure Ulcers (2002) and Prevention of Treatment Ulcers (2002) authored by the University of Iowa Gerontological Nursing Interventions Research Center. These guidelines were adapted from the AHCPR Clinical Guidelines "Pressure Ulcers in Adults: Prediction and Prevention" (May 1992) and "Treatment of Pressure Ulcers" (December 1994) and updates certain information contained in these guidelines.

GUIDELINE AVAILABILITY

Electronic copies: Available from the National Library of Medicine's HSTAT database.

Print copies: Information regarding the availability of these publications can be found in the Agency for Healthcare Research and Quality (AHRQ) (formerly the Agency for Health Care Policy and Research [AHCPR]) Publications Catalog, which is available at the AHRQ Web site.

AVAILABILITY OF COMPANION DOCUMENTS

The following documents are available:

1. Pressure ulcers in adults: prediction and prevention. Agency for Health Care Policy and Research, Public Health Service, U.S. Department of Health and Human Services, 1992 May. 15 p. (Quick reference guide for clinicians; no. 3). AHCPR Publication No. 92-0047. Available from the National Library of Medicine's HSTAT database.
2. Pressure ulcers in adults: prediction and prevention. Agency for Health Care Policy and Research, Public Health Service, U.S. Department of Health and Human Services, 1992. 207 p. (Guideline technical report; no. 3). AHCPR Publication No. 93-0013.

Print copies: Information regarding the availability of these publications can be found in the Agency for Healthcare Research and Quality (AHRQ) (formerly the Agency for Health Care Policy and Research [AHCPR]) Publications Catalog, which is available at the AHRQ Web site.

PATIENT RESOURCES

The following documents are available:

1. Preventing pressure ulcers: a patient's guide. Rockville, MD: Agency for Health Care Policy and Research, Public Health Service, U.S. Department of Health and Human Services, 1992. 11 p. (Consumer guide; no. 13). AHCPR Publication No. 92-0048. Available from the National Library of Medicine's HSTAT database.
2. La prevencion de las llagas por contacto. Rockville, MD: Agency for Health Care Policy and Research, Public Health Service, U.S. Department of Health and Human Services, 1992. 11 p. (Consumer guide, Spanish; no. 3). AHCPR Publication No. 93-0014. Available from the National Library of Medicine's HSTAT database.

Print copies: Information regarding the availability of these publications can be found in the Agency for Healthcare Research and Quality (AHRQ) (formerly the Agency for Health Care Policy and Research [AHCPR]) Publications Catalog, which is available at the AHRQ Web site.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC STATUS

This summary was completed by ECRI on May 1, 2001. Per a recent Evidence-based Practice Center (EPC) report commissioned by the Agency for Healthcare

Research and Quality (AHRQ) (formerly the Agency for Health Care Policy and Research [AHCPR]) in 2000, the guideline is considered, in whole or in part, to still be current.

COPYRIGHT STATEMENT

The contents of these Clinical Practice Guidelines are in the public domain within the United States only and may be used and reproduced without special permission in America, except for those copyrighted materials noted for which further reproduction, in any form, is prohibited without the specific permission of copyright holders. Citation as to source is requested.

Permission to reproduce copyrighted materials must be obtained directly from copyright holders and they may charge fees for the use of copyrighted materials. It is the responsibility of the user to contact and obtain the needed copyright permissions prior to reproducing materials in any form.

Foreign countries must additionally request specific permission to reproduce any part or whole of any guideline product because the public domain does not extend outside of the United States.

Requests regarding copyright permissions should be sent to: Gerri M. Dyer, Electronic Dissemination Advisor, Agency for Healthcare Research and Quality (formerly the Agency for Health Care Policy and Research), Office of Communications and Knowledge Transfer, Suite 2000, Eisenberg Building, 540 Gaither Road, Rockville, MD 20850; Facsimile: 301-427-1873; E-mail: gdyer@ahrq.gov.

© 1998-2005 National Guideline Clearinghouse

Date Modified: 4/25/2005